DOCUMENT RESUME

ED 065 491 24 SP 005 819

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TITLE Tutor Role Enactment in the Peer Teaching Dyad: The Effects of Tutor-Initiated Tutee Evaluation and Reward.
INSTITUTION Wisconsin Univ., Madison. Research and Development Center for Cognitive Learning.
SPONS AGENCY National Center for Educational Research and Development (DHEW/OE), Washington, D.C.
REPORT NO TR-218
BUREAU NO BR-5-0216
PUB DATE Mar 72
CONTRACT OEC-5-10-154
NOTE 44p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Cross Age Teaching; *Evaluation; *Grade 3; *Grade 5; Peer Relationship; Peer Teaching; Reinforcement; *Rewards; Teaching Techniques; *Tutoring

ABSTRACT

The purpose of this study was the determination of those peer teaching variables crucial for the older child's maximal satisfaction. Subjects were 48 fifth grade and 48 third grade children, each grade consisting of 24 males and 24 females. The failure of some subjects to participate in all experimental sessions necessitated the elimination of nine subject pairs, leaving 39 usable subject pairs. Each fifth grade subject was paired with a same-sex third grade subject. Subject pairs were randomly assigned to three conditions: a) evaluation-reward, b) evaluation-no reward, and c) no evaluation. All subject pairs met for five 1-hour tutoring sessions on reading skills. Planned comparisons of pre- and post-experimental data indicated that tutors in the evaluation-reward conditions were significantly less satisfied with tutoring than were tutors in the other two conditions. It was hypothesized that these results were due to the reluctance of the tutors to assume the dual responsibilities of both evaluating and rewarding their tutees. A 31-item bibliography is included. (Author/MJM)

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Technical Report No. 218

TUTOR ROLE ENACTMENT IN THE PEER TEACHING DYAD: THE EFFECTS OF TUTOR-INITIATED TUTEE EVALUATION AND REWARD

Report from the Project on Peer Group Pressures on Learning in Program 1

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March 1972

SP005819

This Technical Report is a master's thesis reporting research supported by the Wisconsin Research and Development Center for Cognitive Learning. Since it has been approved by a University Examining Committee, it has not been reviewed by the Center. It is published by the Center as a record of some of the Center's activities and as a service to the student. The bound original is in The University of Wisconsin Memorial Library.

Published by the Wisconsin Research and Development Center for Cognitive Learning, supported in part as a research and development center by funds from the United States Office of Education, Department of Health, Education, and Welfare. The opinions expressed herein do not necessarily reflect the position or policy of the Office of Education and no official endorsement by the Office of Education should be inferred.

Center No. C-03 / Contract OE 5-10-154

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This Technical Report is from the Peer Group Pressures on Learning Project in Program 1. General objectives of the Program are to generate new knowledge about concept learning and cognitive skills, to synthesize existing knowledge, and to develop educational materials suggested by the prior activities. Contributing to these program objectives, this project is directed toward identification of the effects of peer group pressures on the utilization of concepts already learned and on the learning of new concepts.

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ABSTRACT

Forty-eight fifth-grade, third-grade same-sex pairs, half male and half female, met for five one-hour tutoring sessions on reading skills. Pairs were evenly divided among three conditions: (1) Evaluation-Reward, (2) Evaluation-No Reward, and (3) No Evaluation-No Reward.

Planned comparisons of pre- and post-experimental data indicated that tutors in the Evaluation-Reward conditions were significantly less satisfied with tutoring than were tutors in the other two conditions. It was hypothesized that these results were due to the reluctance of the tutors to assume the dual responsibilities of both evaluating and rewarding their tutees.

INTRODUCTION

Within a comparatively short time, peer teaching has gained wide acceptance as a viable educational technique. However, a concise definition of peer teaching is difficult, as the term is currently applied to numerous tutorial programs differing from each other in terms of participant characteristics, instructional techniques and immediate and long-term goals. Any interaction involving children teaching other children may be described as peer teaching; in this study, however, peer teaching refers to dyadic interactions in which an older child teaches a younger child.

Few studies have investigated the social and psychological effects of peer teaching on the tutor, the child who teaches, since most peer teaching programs emphasize potential benefits to the tutee, the child being taught. In addition, much of the pertinent research consists of anecdotal observations rather than objective data.

Although the Homework Helper Program evaluated by Cloward (1967) involved low-achieving adolescents rather than children as tutors, the results of his controlled study indicate that peer teaching affects both tutor and tutee. Cloward reported significant changes in the reading achievement of both tutors and tutees, with tutees showing a mean gain of 6.2 months in reading achievement over a period of five months as compared to the control group's gain of 3.5 months. Experimental tutors showed an even greater gain in reading achievement, with a mean improvement 1.7 years greater than that of a control group in a seven month period. Anecdotal evidence for the success of this program was provided by teachers' reports of improved schoolwork (Deering, 1968).

Cloward also administered a 54-item questionnaire to both experimental and control tutor groups, "focused on attitudes toward school and school related activities, educational and vocational aspiration, and social values" (p. 23). Although no significant differences were reported between the groups, Cloward suggests that the non-significance of the data is attributable to the fact that tutors initially expressed such high aspirations, positive attitudes and values that the tutorial experience could not have been expected to have any great impact.

The results of the use of under-achieving high school students as teacher-aides in a summer school program for disadvantaged elementary school children (Myers, 1968) provide anecdotal evidence that the assumption of partial teaching responsibility has psychological benefits for older children. The teacher-aides proved more useful than had been expected, expressed enthusiasm for the experience and indicated a greater appreciation for adult teachers as a result of close contact with them.

A teacher-aide program in which adolescents helped teach same-age peers (Neubauer, 1968) yielded self-report data suggestive of substantial attitudinal and motivational changes. Over 80% of the teacher-aides expressed a desire to participate in the program another year. The overwhelming majority of respondents felt that (1) they had been helpful to the supervising teacher, (2) they had worked fairly hard, (3) they had really prepared for the lessons they taught, (4) they had helped at least one other student make progress, (5) the majority of

students in the classes they taught had viewed them with respect.

Anecdotal observations of same-age tutor-tutee programs indicate that tutors become more aware of the personality or background difficulties of some of their tutors (Neubauer, 1968), develop an enhanced view of school (Delaney, 1963; Kuppel, 1964), organize and better understand their own material (Bender, 1967; Kuppel, 1964), and achieve a general sense of belonging and respect within the (college) community (Hawkins, 1965).

Unfortunately, no systematic data exist regarding the effects of a peer teaching program on elementary school tutors. Attempts to objectively measure possible attitudinal changes among intermediate level students tutoring first- and second-grade students (Dunbar, 1968) proved unsatisfactory. Informal feedback from adult teachers involved in this program was generally favorable and positive behavioral changes were noted for some of the student tutors. Similar expressions of satisfaction were reported from a tutoring program in which sixth-grade children taught younger children a variety of subjects on a one-to-one basis (Fleming, 1968).

The lack of experimental research on the effects of peer teaching on the tutor may be partially attributed to the absence of an integrative theoretical orientation. The utilization of such an orientation would facilitate the development of an internally consistent conceptual analysis which could be applied in a systematic evaluation of all the processes involved in peer teaching at both theoretical and empirical levels. Role theory provides this needed orientation.

Role theory is essentially the study of social interaction. Its basic premise is that human social conduct entails the enactment of roles, sets of behaviors adhering to certain positions rather than to the individuals who occupy them. The existence of roles increases interpersonal predictability, thus reducing the stress of social interaction. While roles may be defined abstractly, the interactional nature of role enactment necessitates the study of social roles, the interbehavior of the occupant of one social position with the occupant of a complementary social position (Kantor,1929).

The criteria by which the enactment of social roles are judged include: (1) appropriateness, (2) propriety and (3) convincingness. Inferences regarding the appropriateness of the individual's conduct are based on an examination of its correctness for the ecological context in which it occurs. Propriety requires that "the overt behavior meet the normative standards which serve as valuational criteria for the observer" (Sarbin and Allen, 1968, p. 490). Convincing role enactment leaves no doubt in the observer's mind that the individual's occupancy of the position is legitimate.

The application of role enactment criteria is based on the observer's formation of certain expectations for the enacted role. These role expectations consist of "collections of cognitions--beliefs, subjective probabilities, and elements of knowledge--which specify in relation to complementary roles the rights and duties, the appropriate conduct, for persons occupying a particular position" (Sarbin and Allen, 1968, p. 498). Due to its interactional nature, social role enactment requires an awareness of and conformity to the role expectations held

by complementary role occupants regarding one's own role. Failure to conform to these role expectations may result in removal from the role.

Since competent role enactment is dependent on conformity to role expectations, the relative clarity of these role expectations would seem to be an important determinant of satisfactory and effective social interaction. Sarbin and Allen (1968) identify three sources of role expectation unclarity which result in poor role enactment. Uncertainty and vagueness of role expectations lead to unclear group structure; interpersonal predictability and group performance efficiency are consequently reduced (Torrance, 1954). Role dissensus or role expectation disagreement among complementary role occupants can reduce conformity to role expectations (Gross, Mason and McEachern, 1958) and satisfaction with role performance (Bible and Brown, 1963; Bible and McComas, 1963). Incongruity between the role performer's own expectations for the role and those held by the audience results in role enactment which is improper or inappropriate from the audience's perspective.

Peer teaching, by definition, requires the interaction of at least two individuals. Social interaction, according to role theory, requires the enactment of social roles. Therefore, peer teaching involves the enactment of social roles. The application of a role theory analysis to peer teaching techniques is justifiable, however, only if peer teaching requires the tutor's enactment of a situationally specific social role. If the role enacted by the tutor in peer teaching is identical to those enacted in other situations, an analysis of the process involved in peer teaching from a role theory perspective will be descriptive rather than explanatory.

In peer teaching, the older child is expected to teach the younger child. Teaching requires the successful exercise of social power, the ability to influence the tutee "toward acting or changing in a given direction" (Levinger, 1959, p. 3). In a minimally defined peer teaching interaction, the type of social power involved is the legitimate power of the officially assigned tutor role. The tutor's exercise of this legitimate power requires that the tutee internalize values that dictate an obligation to accept the tutor's influence attempts (French and Raven, 1959; Raven, 1965).

The tutee's internalization of appropriate values will occur only if the tutor's role enactment is convincing, according to the tutee's expectations of the tutor's role. An unpublished questionnaire study conducted by Allen, Towson, and Feldman (1971) provides some indication of tutee expectations of the tutor role. Students from first- to fifth-grade were asked to describe the kind of "teacher" they would prefer if they were enrolled as "students" in a peer teaching program. Eighty per cent of the respondents preferred a teacher much smarter than they were and 86% preferred a tutor who would grade their performance to one who would not. Conceivably, tutor demonstration of superior intelligence would not be discontinuous with the social role enactment required of an older child interacting with a younger one. The younger child's desire for the older child's formal evaluation is unique to peer teaching, however, and it is thus contended that the role enactment required of the tutor is specific to the peer teaching interaction situation.

The inclusion of an evaluative component in the tutor role is consistent with both tutee and tutor role expectations. The unpublished

questionnaire study cited previously (Allen, Towson and Feldman, 1971) included a form given to 192 students from second- to fifth-grades on which they were asked how often they would like to grade their "students" if they were involved as "teachers" in a peer teaching program. Over 96% of the respondents wanted to give their students either one grade at the end of the program or a grade after each peer teaching session. Less than 4% of the students preferred to give no grade at all.

It is suggested that the inclusion of an evaluative component in the definition of the older child's peer teaching role will substantially reduce the three types of role unclarity delineated by Sarbin and Allen (1968). In addition to minimizing role dissensus, since both older and younger children share formal evaluation expectations, the assignment of concrete evaluation tasks to the older child would make role expectations less ambiguous and more certain. The mutual agreement between adult supervisor and peer teaching tutor that such tasks be performed would diminish the possibility of role performer-audience role expectation incongruity. The reduction of role expectation unclarity makes conformity to role expectations more probable, thus maximizing the potential for satisfying and effective social interaction.

The contention that the inclusion of an evaluative component in the tutor role definition will increase the older child's satisfaction with peer teaching is based on more than the predicted reduction of role expectation unclarity. The younger child will be more likely to admit the legitimacy of the older child's occupation of the teacher role if its enactment entails the performance of concrete tasks, such as formal evaluation. As a result, the tutor's ability to exercise the legitimate

power accruing from assignment to the teacher role will increase with the addition of formal evaluation procedures to tutor role enactment requirements. Although data directly supporting this hypothesis do not exist, it provides a plausible explanation for the findings of the Allen, Towson and Feldman questionnaire study.

Basic to the hypothesis that evaluation is a crucial peer teaching variable due to its implications for social power is the assumption that the older child's satisfaction will increase with its maximization. According to Thibaut and Kelley (1959), the person with high power in a dyadic interaction will experience more positive outcomes or rewards and less negative outcomes or costs than the low-power participant. In addition, the high power role occupant's greater control of the interaction facilitates interpersonal prediction, thus reducing one source of potential stress. The symbolic value of being able to initiate interaction is also rewarding. Whyte's (1949) study of the attempts of restaurant countermen to avoid taking orders from waitresses illustrates the importance to the individual of reducing the control of others.

Unfortunately, no research has been conducted on the origin of children's expectations of the tutor role. A reasonable speculation is that students perceive the tutor role as analogous to that of the adult teacher and thus share similar expectations for both roles. The various evaluation procedures in which adult teachers engage have definite consequences for their students. If expectations for the tutor role are based on adult teacher role expectations, both the older and the younger child in peer teaching will expect the older child's evaluation to result in certain well-defined consequences for the younger child.

The tutor's use of formal tutee evaluation procedures in determining specific rewards for good or bad student performance could reduce role expectation unclarity more than evaluation alone, due to a closer correspondence to the children's experiences in the traditional student role. Reward power could also serve as an additional validation and source for the tutor's exercise of the legitimate power associated with the teacher role position. Therefore, it is suggested that tutor satisfaction with peer teaching will increase with the addition of reward power to the evaluative component of the tutor role definition.

The predictions advanced in the preceding discussion, in hypothesis form, are as follows:

H_1: Tutors who formally evaluate their tutees will indicate significantly greater satisfaction with themselves, with their tutees and with peer teaching than tutors who do not formally evaluate their tutees.

H_2: Tutors who formally evaluate and reward their tutees will indicate significantly greater satisfaction with themselves, with their tutees and with peer teaching than tutors who formally evaluate their tutees but do not reward them.

METHOD

Subjects

Subjects were 48 fifth-grade children and 48 third-grade children, each grade consisting of 24 males and 24 females. To obtain fifth-grade subjects, letters explaining the proposed study were mailed to parents of 100 male and 100 female children entering sixth grade in the fall, whose names were randomly selected from a list of all such children in the Madison school system not participating in other studies.

Third-grade subjects were selected in two ways, through letters requesting the names of third-grade children entering fourth grade in the fall, distributed to 400 fifth-grade children enrolled in a two-week testing program, and through telephone calls to the parents of fifth-grade children scheduled for a second two-week testing program. These parents either had third-grade children or provided the names of neighbors with third-grade children who were then contacted.

All fifth- and third-grade subjects who attended all sessions of the study received a $5.00 "participation award" at its conclusion.

Each fifth-grade subject was paired with a same-sex third-grade subject. Pairing was random when possible, although transportation and scheduling difficulties necessitated some grouping and subsequent pairing of subjects from the same geographical area. When this situation occurred, fifth- and third-grade subjects who did not know each other prior to the study were paired.

An equal number of male and female subject pairs was scheduled for each of six daily tutoring sessions, three in the morning and three in the afternoon. One morning and one afternoon session was designated for each of three experimental conditions, all subject pairs meeting at each time thus being in the same condition. The failure of some subjects to participate in all experimental sessions necessitated the elimination of nine subject pairs, leaving 39 usable fifth-grade-third-grade subject pairs in all, 13 in each condition.

Design

Subject pairs were randomly assigned to three conditions: (1) Evaluation-Reward, (2) Evaluation-No Reward and (3) No Evaluation. In the Evaluation-Reward condition, each fifth-grade "teacher" completed a written evaluation of his or her third-grade "student" after each tutoring session. On the basis of this evaluation, the fifth-grade teacher determined the size of the reward deserved by the third-grade student for the "lesson." In the Evaluation-No Reward condition, the fifth-grade teacher formally evaluated the third-grade student's performance after each tutoring session, but had no reward power. In the No Evaluation condition, the fifth-grade teacher neither formally evaluated the third-grade student nor determined the size of the reward.

Lesson Procedure

All subject pairs met together for one tutoring session daily for five consecutive days. Prior to the first and after the fifth tutoring session, fifth- and third-grade subjects met in separate groups to receive instructions (Appendix A) and complete dependent measures. At

each tutoring session, the third-grade student in each pair read aloud to the fifth-grade teacher from Ideas and Images (1968), a third-grade level reader. The fifth-grade teachers were given no explicit instructions as to how to teach the stories. They were told only that they were to "help" their students read the stories, to explain word meanings and to correct pronunciation errors. The first and fifth tutoring sessions were approximately 20 minutes long and all pairs read one story at each of these sessions. The second, third, and fourth sessions lasted between 45 minutes and 60 minutes, depending on individual third-grade reading speed. At these sessions, subjects read eight stories altogether. The majority of subject pairs read three stories at the second session, two at the third and three at the fourth session. At the end of each story, fifth-grade teachers in all conditions asked their third-grade students five questions about the story from a series of "Questions for Discussion" included in the folder provided for each fifth-grade teacher.

Evaluation Procedure

In the Evaluation-Reward and Evaluation-No Reward conditions, each teacher folder contained five "report cards" in addition to the "Questions for Discussion," one of which was completed by each fifth-grade teacher for his or her third-grade student at the end of each tutoring session. Each report card consisted of three sections: Citizenship, Work Habits, and Reading Skills, within each of which were phrases such as "Got to work promptly" and "Read carefully and accurately."

Two grades were given for each item, a performance grade and an effort grade. The grading key on the report card defined the performance grades as: A - very good, B - good, C - average, D - poor, F - very poor. The effort grades included S - satisfactory, U - unsatisfactory, I - improving. A space was provided at the bottom of the report card for an overall performance grade. Although the third-grade students were aware that they were being graded, they were not shown their report cards since knowledge of evaluation content might have differentially affected actual performance. There were no report cards in the No Evaluation condition.

Reward Procedure

At the end of each tutoring session, after they had completed their students' report cards, fifth-grade teachers in the Evaluation-Reward condition decided how many "Candy Corns" their third-grade students deserved. While it was vital to the experimental manipulation that fifth-grade subjects in the Evaluation-Reward condition be aware that the locus of reward power resided with them, it was equally important that their third-grade students attribute the responsibility for candy distribution to the experimenter, so that their actual performance would not be differentially affected according to size of reward. To ensure that fifth-grade subjects were aware both of their decision-making power and of the importance of not letting their third-grade students know about it, the following cover story was devised:

> In regular school, teachers reward good students. In this school, you are going to reward your students with candy. At the end of each lesson, after you have filled out your student's report card, you are going to decide how many candies you student deserves. Since we don't want the students to feel too bad or to get too conceited, you will

never give your student less than 5 candies or more than 20 candies. If your student knew that you were the one deciding how much candy to give, your student might get upset and make it hard for you to teach. To make sure that doesn't happen, we won't tell your students that you teachers decide how much candy they get. After you have decided how much candy your student deserves, write the number down in the space at the bottom of the report card. Then I will collect the report cards and give your students the amount of candy you wrote down. That way, you will be deciding what kind of reward your student deserves since you are the teacher and your student won't get angry and upset.

In order to keep possible reward effects constant, third-grade students in both the Evaluation-No Reward and No Evaluation conditions also received candy. These student rewards were explained to the fifth-grade teachers in the following words:

In regular school, good students are rewarded. In this school, I am going to reward your students with candy. At the end of each lesson (Evaluation-No Reward condition only: after you have filled out your student's report card), I am going to decide how many candies your students deserve. Since I don't want the students to feel too bad or to get conceited, I will never give them less than 5 candies or more than 20 candies.

The number of candies given to each child in these conditions was the mean of the number of candies awarded to third-grade students in the Evaluation-Reward condition on the preceding day, except at the first tutoring sessions when these third-grade students each received 15 candies.

Fifth-grade subjects in all conditions each received ten candies as "teacher pay" after each tutoring session. This candy was provided so that fifth-grade subject satisfaction with enactment of the teacher role would not be affected by perceived reward advantages of student role occupancy. It was decided to award the same amount of candy to the fifth-grade teachers every day in order to make explicit the fact that teacher and student rewards were not contingent on each other.

Third-Grade Dependent Measures

(1) WRAPT: Prior to the first tutoring session, third-grade subjects completed a 25-sentence Word Recognition Achievement-Placement Test (WRAPT) (Appendix B) constructed by the editors of Ideas and Images (Johnson, Kress, McNeill and Hutchins, 1968). The WRAPT measures vocabulary and was administered in this study in order to determine whether third-grade pre-experimental performance levels differed significantly among conditions.

(2) SCAL: The Self-Concept as a Learner Scale (SCAL) - Elementary Form (Fisher, 1970) (Appendix B) was administered to third-grade subjects before and after the tutoring sessions so that possible changes in self-concept due to the experimental manipulation could be measured. The test includes four subscales - Motivation, Task Orientation, Problem Solving, and Class Membership, each of which consists of both negatively and positively worded items.

(3) CT: After the last tutoring session, the third-grade subjects completed a Comprehension Test (CT) (Appendix B), created by the author and based on the stories read during the tutoring sessions. The CT consists of 25 multiple choice questions selected from the "Questions for Discussion" used during the lessons, two or three from each story read. The CT provides an index of post-experimental third-grade performance levels.

(4) TPQ-3: The Teaching Program Questionnaire (TPQ-3) (Appendix B), developed by the author, was filled out at the study's conclusion. The TPQ-3 includes 26 to 28 items (depending on condition) about the subjects' evaluation of themselves as students, their fifth-grade

teachers and the tutoring program in general, answered by circling a "Yes," a "No," or an "Undecided." Additional test items include ages and sexes of siblings, whether or not the subjects ever play school, and three open-ended questions regarding the best part of playing school, what was liked best about the lessons and what was disliked most about the lessons.

Fifth-Grade Dependent Measures

(1) IAV: Prior to the first and after the last tutoring session, fifth-grade subjects were given the Index of Adjustment and Values (IAV), Form B (Appendix C), Koocher's (1971) modified version of the original test developed by Bills, Vance and McLean (1951), consisting of 30 adjectives which describe socially desirable characteristics. The IAV includes three subscales designed to measure real self concept (I am like this), and ideal self concept (I wish I were like this). Each adjective is judged as characteristic of each subscale "Most of the time," "About half of the time," or "Hardly ever." A fourth subscale was added to the test (Third graders are like this), assessing fifth-grade subject attitudes toward third-grade children. The IAV was administered so that the effects of the experimental manipulations on personality and attitude could be determined.

(2) TPQ-5: The fifth-grade Teaching Program Questionnaire (TPQ-5) (Appendix C), created by the author, was completed by subjects in all conditions after the last tutoring session. It differs according to condition, consisting of 29 to 40 sentences answered on a five-point scale, from "Agree Very Much" to "Disagree Very Much." These sen-

tences assess the subjects' evaluation of themselves as teachers, their third-grade students and the tutoring program in general. The last part of the questionnaire includes the same items as the TPQ-3, except that the word "teaching" replaces the word "lessons" in the last two open-ended questions.

RESULTS

Data Analysis

Orthogonal planned comparisons were performed on the data from the SCAL, the TPQ-3, the IAV and the TPQ-5. Table 1 indicates the two comparisons tested.

	Condition		
	Evaluation-Reward	Evaluation-No Reward	No Evaluation
Comparison #1: Evaluation - No Evaluation	+1	+1	-2
Comparison #2: Reward - No Reward	+1	-1	0

Table 1: Orthogonal Planned Comparisons

Third-Grade Measures

(1) WRAPT: A one-way analysis of variance by condition was performed on third-grade subjects' total error scores on the WRAPT. Number of errors ranged from one to 17 (M=7.974), $F(2,36)=.097$, n.s., indicating that third-grade pre-experiment performance levels did not differ significantly across conditions.

(2) CT: Individual subject errors on the CT ranged from none to ten (M=3.103). A one-way analysis of variance by condition yielded $F(2,36)=.065$, n.s. Third-grade post-experimental performance levels, therefore, were not significantly different across conditions.

(3) Third-Grade Reading Speed: During the course of the tutoring sessions, relatively large differences in third-grade subject reading speed were noted. At the last tutoring session, the time taken by each third-grade subject to read the last story was recorded. Reading time on this story ranged from seven to 21 minutes. A one-way analysis of variance performed on the data revealed no significant differences in third-grade subject reading speed across conditions, $F(2,36)=.1025$, n.s.

(4) SCAL: Planned comparisons were performed on the pre-test, post-test and difference scores of each of the SCAL subscales. The results of this analysis are presented in Table 2. An examination of the data indicates that third-grade subjects in each condition did not differ significantly on any of the SCAL subscales, either before or after the experimental manipulation.

(4) TPQ-3: Item-by-item planned comparison analysis of the TPQ-3 yielded only one significant result. On item #5, "My fifth-grade teacher liked me," $F(1,36)=6.418$, $p<.02$, when Evaluation and No Evaluation conditions are compared. Examination of the means (E-R=0.385, E-NR= 0.615, NE=0.000) indicates that third-grade subjects in the Evaluation conditions were significantly less sure that their fifth-grade teacher liked them than subjects in the No Evaluation condition (Yes=0, Undecided =1, No=2). The items on which analyses were performed are listed in Appendix B; none of the other comparisons was significant.

Fifth-Grade Dependent Measures

(1) IAV: A planned comparison analysis of variance of the fifth-grade IAV data included examination of pre-test, post-test and some difference scores. The results of these analyses are shown in Table 3.

		SCAL Subscales					
		Motivation			Task Orientation		
Source	df	pre	post	diff.	pre	post	diff.
Between groups	2						
Evaluation - No Evaluation	1	F=2.099 n.s.	F=0.212 n.s.	F=2.278 n.s.	F=0.649 n.s.	F=0.325 n.s.	F=0.084 n.s.
Reward - No Reward	1	F=2.417 n.s.	F=0.139 n.s.	F=2.287 n.s.	F=1.664 n.s.	F=0.698 n.s.	F=0.311 n.s.
Error (Within groups)	36	MS=10.266	MS=13.581	MS=17.652	MS=27.196	MS=26.684	MS=18.700

		Problem Solving			Class Membership		
Source	df	pre	post	diff.	pre	post	diff.
Between groups	2						
Evaluation - No Evaluation	1	F=0.017 n.s.	F=0.844 n.s.	F=1.162 n.s.	F=0.021 n.s.	F=1.004 n.s.	F=0.999 n.s.
Reward - No Reward	1	F=2.075 n.s.	F=1.097 n.s.	F=0.069 n.s.	F=0.836 n.s.	F=0.588 n.s.	F=0.001 n.s.
Error (Within groups)	36	MS=26.769	MS=35.891	MS=20.028	MS=11.336	MS=15.729	MS=12.171

Table 2: Third-Grade Self-Concept as a Learner Scale. Planned Comparisons

		IAV Subscales					
		I am like this			Other people are like this		
Source	df	pre	post	diff.	pre	post	diff.
Between groups	3						
Grand Mean	1	___	___	___	___	___	F=21.257 p<.0005
Evaluation - No Evaluation	1	F=1.098 n.s.	F=0.194 n.s.	F=1.279 n.s.	F=0.002 n.s.	F=0.019 n.s.	F=0.088 n.s.
Reward - No Reward	1	F=0.471 n.s.	F=0.021 n.s.	F=1.1415 n.s.	F=2.092 n.s.	F=3.150 p<.10	F=0.928 n.s.
Error (Within groups)	36	MS=81.026	MS=102.246	MS=19.408	MS=70.226	MS=88.208	MS=22.311

		I wish I were like this		Third graders are like this			
Source	df	pre	post	pre	post	diff.	diff.*
Between groups	3						
Grand Mean	1	___	___	___	___	F=9.49 p<.005	F=3.596 p<.10
Evaluation - No Evaluation	1	F=1.325 n.s.	F=5.520 p<.025	F=0.108 n.s.	F=0.0002 n.s.	F=0.155 n.s.	F=6.161 p<.02
Reward - No Reward	1	F=1.136 n.s.	F=0.008 n.s.	F=0.196 n.s.	F=1.241 n.s.	F=0.911 n.s.	F=0.263 n.s.
Error (Within groups)	36	MS=5.809	MS=18.232	MS=66.258	MS=17.182	MS=41.58	MS=24.318

Table 3: Fifth-Grade Index of Adjustment and Values. Planned Comparisons

*I am like this (pre) - I wish I were like this (pre) - (I am like this (post) - I wish I were like this (post))

Fifth-grade subject scores did not differ significantly across conditions prior to the experimental manipulation. After the experiment, subjects in all conditions scored "Other people are like this" significantly more favorably than they had before the experiment: $F(1,36)=21.257$, $p<.0005$, M=45.415 - 42.246 (NE), M=47.831 - 45.077 (E-R), M=43.077 - 38.538 (E-NR).

The hypothesis that Evaluation condition subjects would differ significantly from No Evaluation condition subjects due to more positive self-concept was not confirmed. On the ideal self-concept subscale, "I wish I were like this," $F(1,36)=5.250$, $p<.025$ on the post-test, due to the No Evaluation condition subjects' less favorable ideal self-concept: M=35.792 (NE), M=32.461 (E-R), M=32.308 (E-NR). The difference between pre- and post-test real-ideal self-concept discrepancies was also significant for the Evaluation - No Evaluation condition comparison: $F(1,36)=6.161$, $p<.02$. This finding is attributable to a No Evaluation condition combination of less favorable ideal self-concept (M=33.446 - 35.792) and improved real self-concept (M=45.108 - 43.185) after the experiment.

The Reward - No Reward condition hypothesis was partially disconfirmed by a marginally significant difference on the post-test subscale, "Other people are like this," the projective measure of satisfaction with self, $F(1,36)=3.150$, $p<.10$, indicating a trend for No Reward condition subjects to be more satisfied with themselves (M=38.538(NR), M=45.077(R)).

(2a) TPQ-5: The results of the item-by-item planned comparisons analyses of the TPQ-5 are included in Table 4.

Source	df	Item Number 1	3	4	7	8	9	10	11
Between Groups	2								
Evaluation - No Evaluation	1	F=1.714 n.s.	F=0.425 n.s.	F=0.852 n.s.	F=3.6145 p<.07	F=0.281 n.s.	F=0.467 n.s.	F=1.137 n.s.	F=2.185 n.s.
Reward - No Reward	1	F=0.571 n.s.	F=2.867 p<.10	F=0.102 n.s.	F=3.904 p<.06	F=0.844 n.s.	F=0.257 n.s.	F=1.516 n.s.	F=0.039 n.s.
Error	36	MS=0.269	MS=0.483	MS=0.376	MS=0.355	MS=0.410	MS=1.346	MS=0.406	MS=0.991

Source	df	13	14	15	16	17	20	22	23
Between Groups	2								
Evaluation - No Evaluation	1	F=0.077 n.s.	F=0.009 n.s.	F=15.1875 p<.0005	F=0.457 n.s.	F=1.704 n.s.	F=2.09 n.s.	F=0.000 n.s.	F=0.194 n.s.
Reward - No Reward	1	F=3.094 p<.09	F=0.242 n.s.	F=10.5625 p<.003	F=0.086 n.s.	F=3.4225 p<.08	F=6.269 p<.02	F=0.119 n.s.	F=1.312 n.s.
Error	36	MS=1.504	MS=1.432	MS=0.615	MS=1.795	MS=0.910	MS=1.380	MS=1.295	MS=1.055

Source	df	25	26	27	29	32	33	34	35
Between Groups	2								
Evaluation - No Evaluation	1	F=0.210 n.s.	F=0.010 n.s.	F=1.885 n.s.	F=1.4015 n.s.	F=0.305 n.s.	F=0.955 n.s.	F=0.244 n.s.	F=0.507 n.s.
Reward - No Reward	1	F=0.157 n.s.	F=3.582 p<.07	F=2.710 n.s.	F=0.313 n.s.	F=0.000 n.s.	F=4.478 p<.05	F=0.326 n.s.	F=2.980 p<.10
Error	36	MS=0.979	MS=1.299	MS=1.150	MS=1.107	MS=1.513	MS=0.859	MS=1.889	MS=0.632

Source	df	37	38	39	40
Between Groups	2				
Evaluation - No Evaluation	1	F=0.075 n.s.	F=0.027 n.s.	F=2.604 n.s.	F=0.550 n.s.
Reward - No Reward	1	F=1.228 n.s.	F=0.082 n.s.	F=2.994 p<.10	F=2.579 n.s.
Error	36	MS=1.534	MS=0.470	MS=2.171	MS=1.491

Table 4: Fifth-Grade Teaching Program Questionnaire. Planned Comparisons

On item #15, "Being a teacher was easy," $F(1,36)=15.1875$, $p=.0005$ for Evaluation - No Evaluation and $F(1,36)=10.5625$, $p<.003$ for Reward - No Reward. An examination of condition means indicates that the differences were in a direction opposite to that predicted by the hypotheses, with No Evaluation subjects agreeing most strongly with the item ($M=1.308$), Evaluation-No Reward condition subjects next ($M=1.846$), and Evaluation-Reward condition subjects last ($M=2.846$).

Item #17, "My student was polite to me," was marginally significant for both Evaluation - No Evaluation and Reward - No Reward condition comparisons: $F(1,36)=3.6145$, $p<.10$, $F(1,36)=3.904$, $p<.10$. Again, in terms of agreement with the item, No Evaluation condition subjects agreed most ($M=1.154$), Evaluation-No Reward condition subjects were next ($M=1.308$) and Evaluation-Reward condition subjects were last ($M=1.769$).

No other significant results were found for the Evaluation - No Evaluation condition comparison. Results from the Reward - No Reward condition comparison alone include two significant ($p<.05$) and six marginally significant ($p<.10$) items. Item #20, "I would have liked teaching more if I could have given my student tests," yielded $F(1,36)=6.269$, $p<.02$; Reward condition subjects disagreed with this statement significantly more ($M=3.154$) than did subjects in either the No Reward or No Evaluation conditions ($M=2.000$). Item #33, "I was a better teacher than the other teachers," was also significantly different for Reward and No Reward condition subjects, $F(1,36)=4.478$, $p<.05$. Reward condition subjects judged themselves as significantly poorer teachers ($M=3.385$) than did No Reward condition subjects ($M=2.615$).

Approaching significance were item #3, "I was a good teacher," $F(1,36)=2.867$, $p<.10$, item #13, "The stories were too easy for my student," $F(1,36)=3.094$, $p<.09$, item #17, "I liked asking my student questions about the stories," $F(1,36)=3.4225$, $p<.08$, item #26, "Correcting my student's reading mistakes made me feel important," $F(1,36)=3.582$, $p<.07$, item #35, "Teaching made me feel important," $F(1,36)=2.980$, $p<.10$ and item #39, "I would rather teach a lot of children than one child at a time." The means for all these items indicated significantly greater disagreement by Reward condition subjects. With tne exception of item #39, the Reward condition subject response was also less favorable than the No Evaluation condition subject response.

Visual inspection of the non-significant items on the TPQ-5 confirmed the existence of a consistent response pattern; on all items, without exception, Reward condition subjects disagreed with the statements more than did the No Reward condition subjects. A Kruskal-Wallis (1952) "Analysis of Variance" by ranks performed on the mean scores of the 28 TPQ-5 items answered in all conditions is presented in Table 5. It yielded $H'(2)=378.495$, $p<.001$. The rank sums for each condition were: E-R=1419.0, E-NR=1089.5, NE=1061.5. It appears that subjects in the Evaluation-No Reward and No Evaluation conditions were essentially similar in their responses to the TPQ-5 while subjects in the Evaluation-Reward condition were significantly less positive.

A series of *t* tests was performed on the six items answered only by Evaluation-Reward and Evaluation-No Reward condition subjects. Responses differed significantly only for item #31, "Filling out my student's report cards made me feel important," $t(24)=2.504$, $p<.02$. Subjects in the No

	Condition					
	Evaluation-Reward		Evaluation-No Reward		No Evaluation	
Item #	Mean	Rank	Mean	Rank	Mean	Rank
1	1.462	14.5	1.308	7.5	1.154	2.0
3	2.308	50.0	1.846	28.0	1.923	31.0
4	1.385	12.5	1.308	7.5	1.154	2.0
7	1.769	24.5	1.308	7.5	1.154	2.0
8	1.538	17.0	1.308	7.5	1.308	7.5
9	2.231	46.5	2.462	53.5	2.077	39.0
10	1.385	12.5	1.692	22.5	1.308	7.5
11	2.154	43.0	2.077	39.0	1.615	20.0
13	3.692	78.0	2.846	60.5	3.154	68.0
14	4.385	84.0	4.154	82.0	4.308	83.0
15	2.846	60.5	1.846	28.0	1.308	7.5
16	3.462	74.0	3.615	76.5	3.231	70.0
17	2.231	46.5	1.538	17.0	1.462	14.5
20	3.154	68.0	2.000	34.0	2.000	34.0
22	3.154	68.0	3.000	63.5	3.077	65.5
23	2.846	60.5	2.385	52.0	2.462	53.5
25	2.231	46.5	2.077	39.0	2.000	34.0
26	2.692	57.5	1.846	28.0	2.231	46.5
27	2.846	60.5	2.154	43.0	2.000	34.0
29	1.846	28.0	2.077	39.0	1.538	17.0
32	3.846	80.0	3.846	80.0	3.615	76.5
33	3.385	72.5	2.615	56.0	3.308	71.0
34	3.385	72.5	3.077	65.5	3.000	63.5
35	2.308	50.0	1.769	24.5	1.846	28.0
37	2.692	57.5	2.154	43.0	2.308	50.0
38	1.615	20.0	1.692	22.5	1.615	20.0
39	3.538	75.0	2.538	55.0	3.846	80.0
40	2.077	39.0	1.308	7.5	2.000	34.0
		T_j 1419.0		T_j 1089.5		T_j 1061.5

T = 3570.0

H = 377.7385 C = 0.998 H'(2) = 378.4954, $p<.001$

Table 5: Fifth-Grade Teaching Program Questionnaire.

Kruskal-Wallis "Analysis of Variance" By Ranks

Reward condition agreed significantly more with the statement (M=1.846) than subjects in the Reward condition (M=2.692), a result consistent with findings for the other items on the TPQ-5.

(2b) TPQ-5: The results of a regression analysis using third-grade reading speed as the covariate are presented in Table 6. Third-grade reading speed was a significant predictor of fifth-grade subject response to item #9, "My student was a good reader," $F(1,35)=19.730$, $p=.0001$, item #10, "My student tried hard at the lessons," $F(1,35)=6.5915$, $p<.02$, item #11, "My student was smart," $F(1,35)=11.2725$, $p=.002$, item #22, "My student was smarter than the other students," $F(1,35)=14.787$, $p=.0005$. It had a marginally significant effect of item #7, "My student was polite to me," $F(1,35)=3.478$, $p<.10$, and item #13, "The stories were too easy for my student," $F(1,35)=3.124$, $p<.10$.

Item #	Mult R	F	P<
1	.0602	.1273	.7234
3	.1147	.4669	.4990
4	.2699	2.7504	.1062
7	.3006	3.4778	.0707+
8	.0306	.0328	.8575
9	.6004	19.7296	.0001**
10	.3981	6.5915	.0147*
11	.4936	11.2725	.0020**
13	.2863	3.1243	.0859+
14	.0892	.2810	.5995
15	.1866	1.2632	.2687
16	.1611	.9331	.3407
17	.0283	.0281	.8678
20	.0397	.0552	.8156
22	.5450	14.7871	.0005**
23	.1162	.4789	.4935
25	.1532	.8410	.3654
26	.1248	.5535	.4619
27	.0326	.0373	.8481
29	.1560	.8731	.3566
32	.2085	1.5907	.2156
33	.2068	1.5633	.2195
34	.2351	2.0479	.1613
35	.0018	.0001	.9918
37	.2447	2.2290	.1444
38	.0959	.3248	.5724
39	.0085	.0026	.9600
40	.0164	.0094	.9232

Table 6: Third-Grade Reading Speed and Fifth-Grade Teaching Program Questionnaire. Regression Analysis

DISCUSSION

The first hypothesis, that Evaluation condition tutors would be significantly more satisfied with themselves, their students and peer teaching in general than No Evaluation condition tutors, was refuted by the overall results, despite a few significant differences. The second hypothesis, that Evaluation-Reward condition tutors would be significantly more satisfied with themselves, their students and peer teaching in general than Evaluation-No Reward condition tutors, was also disconfirmed. Instead, the results indicated that Evaluation-Reward tutors were significantly less satisfied with peer teaching than either Evaluation-No Reward or No Evaluation condition tutors. Therefore, two findings in particular require explanation: (1) the response similarity of fifth-grade subjects in both the No Evaluation and Evaluation-No Reward conditions and (2) the comparatively negative responses of fifth-grade subjects in the Evaluation-Reward condition.

Examination of the data revealed certain differences between No Evaluation and Evaluation-No Reward condition results. It is suggested that No Evaluation condition subjects found enactment of the tutor role much easier than they had expected it to be, requiring only minimal effort. A lack of real involvement in the role may explain the high No Evaluation condition subject agreement with the item, "Being a teacher was easy." Confidence in ability to enact the tutor role, due to its similarity to familiar roles, could account for the third-grade No Evaluation subjects' unanimous conviction that their fifth-grade teachers liked them; fifth-grade subjects presumably felt little need for a re-definition of the older-younger child relationship in terms of the formally assigned roles.

The easy attainment of role enactment competency for No Evaluation condition subjects could also be responsible for the post-experimental decrease in real-ideal self-concept discrepancy.

For the Evaluation-No Reward condition subjects, the effort required for tutor role enactment was consistent with prior expectations. Therefore, satisfaction with peer teaching was the result of conformity to these expectations and subsequent feelings of role performance competency. The basis for believing that Evaluation-No Reward condition subjects regarded evaluation procedures as consistent with tutor role enactment was their strong agreement with the items, "I liked asking my student questions about the stories," and "I would have liked teaching better if I could have given my student tests." Several items on the TPQ-5 were designed to assess the extent to which subjects derived feelings of power from peer teaching. Evaluation-No Reward condition subjects responded favorably to three of these items, "Teaching made me feel important," "Correcting my student's reading mistakes made me feel important," and "Filling out my student's report cards made me feel important." Agreement with these last two items suggests the probability that the evaluative component of the tutor role was instrumental in increasing feelings of social power.

If Evaluation-No Reward condition subject reaction to peer teaching was a function of perceived success at tutor role enactment, positive evaluations of self as teacher would be expected. On two items, "I was a good teacher," and "I was a better teacher than the other teachers," this expectation was confirmed.

The fact that Evaluation-Reward condition subjects were relatively dissatisfied with peer teaching may have been due to their discovery that enactment of the tutor role was more difficult than had been anticipated. Smelser (1961) assigned subjects with high or low dominance scores to either congruent or incongruent role pairs. Greatest task effectiveness occurred in self-role congruent dyads; the least effective dyads consisted of self-role incongruent occupants. Bunker (1967) reported that subjects in a similar study were more satisfied both with themselves and with their team performance in a self-role congruent dyadic interaction.

Although it is relatively unlikely that all subjects in the Evaluation-Reward condition had submissive personalities, the Bunker and Smelser studies illustrate the importance of self-role congruence for successful dyadic role enactment. Self-characteristics are based, to a large extent, on cumulative environmental influences while the enactment of a novel role is facilitated by reference to similar behaviors required in more familiar roles. In terms of both environmental influences and commonly enacted roles, the fifth-grade child has had relatively little experience in exercising legitimate power. When this power involves the determination of specific consequences for another individual, it is suggested that the older child lacks the confidence necessary for the comfortable assumption of that degree of responsibility. The formal evaluation of the tutee is somewhat consistent with the tutor's status as an older child; the addition of reward power to the role makes it incongruent with both self and status characteristics. The Evaluation-Reward condition subjects doubted the legitimacy of their occupation of the tutor role; as a result, they felt unable to enact it competently and became dissatisfied with themselves, their students and peer teaching in general.

The data which support the contention that Evaluation-No Reward condition subjects evaluated themselves as competent role performers also reveals the Evaluation-Reward condition subjects' lack of such confidence.

The Evaluation-Reward condition subject reaction to peer teaching was negative relative to results for the other two conditions. The supposition that peer teaching was not totally dysfunctional for these subjects is supported by the significant positive differences found between pre- and post-test scores on the IAV subscale, "Other people are like this," for all conditions. This subscale is actually a projective measure of satisfaction with self and so it would seem that all subjects experienced an increase in self-satisfaction, regardless of condition assignment.

The subscale, "Third graders are like this," was added to the IAV to test the idea that formal evaluation would serve a social comparison function, increasing the salience of perceived differences between third- and fifth-grade children and reducing the perception of similarities. All fifth-grade subjects assessed third graders significantly more favorably after the experiment than before it, indicating that interaction increases perceived similarity despite the operation of evaluation procedures.

The significant results of the regression analysis on third-grade reading speed have definite implications for the design of future peer teaching studies. Provisions for the control or systematic evaluation of this factor should ideally be made prior to the experimental manipulation. The finding that third-grade reading speed significantly predicted fifth-grade responses to item #9, "My student was a good reader," is not surprising. On two items, "My student was smart," and "My student was

smarter than the other students," the results suggest that fifth-grade children are unable to make the relatively subtle distinction between general intelligence and specific abilities. A similar inability to differentiate between performance and effort provides a credible explanation for the predictive relationship between reading speed and the fourth item, "My student tried hard at the lessons."

Item #7, "My student was polite to me," predicted by third-grade reading speed at a marginally significant level, was also marginally significant in both planned comparisons, indicating the presence of a complex interaction effect. Perhaps all fifth-grade subjects confused poor reading ability with deliberate obstinacy. Condition differences on this item could have been due to differential sensitivity regarding appropriate tutee behavior toward the tutor, with No Evaluation condition subjects least sensitive and Evaluation-Reward condition subjects most sensitive. The marginally significant interactions between third-grade reading speed, item #13, "The stories were too easy for my student," and the Reward - No Reward condition planned comparison are somewhat more difficult to explain. Perhaps the Reward condition subjects' conviction that the stories were relatively hard for their students resulted from their need to justify their occupation of the teacher role by proving that they were needed.

The lack of significant results on the third-grade dependent measures was expected since condition differences were controlled so as to minimize possible differential effects on third-grade performance. Although tutee attitudes could conceivably have been affected by condition differences in fifth-grade tutor behavior, this possibility was not considered

a likely one. The significance of one item on the TPQ, therefore, was probably due to chance.

The dependent measures used in this study may be criticized for their lack of established validity and reliability. The choice of instruments was limited, however, due to the scarcity of previous peer teaching research. The fact that the Teaching Program Questionnaires devised by the author produced some significant results indicates their potential usefulness in future studies; the underlying factor structure of these questionnaires should be examined in order to assess construct validity.

The focus of this study was the determination of those peer teaching variables crucial for the older child's maximal satisfaction. Future research will undoubtedly further clarify the peer teaching structure which most facilitates the competent enactment of the tutor role. It must not be forgotten, however, that the opportunity for competent role enactment is only the means to an end; the eventual goal is the initiation of positive changes in the older child's social identity, in cognitions about self arising from placement in the social ecology. The thesis that role enactment can change cognitions is supported by Lieberman's (1956) study of factory workers who became either foremen or union shop stewards and promptly assumed attitudes congruent with their new roles. Additional evidence of attitudinal change due to role enactment is provided by Janis and King's (1954) laboratory experiment, in which subjects who publicly espoused viewpoints to which they were privately opposed changed their private opinions. Hopefully, therefore, future research will lead to the development of peer teaching programs with positive effects on both tutee and tutor attitudes and behaviors toward themselves and others.

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Appendices A through C have been deleted from this paper, but are available on microfilm from Memorial Library, University of Wisconsin, Madison, Wisconsin.

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